

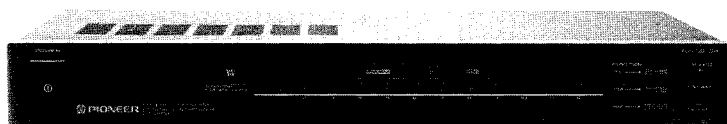
Operating Instructions

STEREO TV • FM/AM DIGITAL
SYNTHESIZER TUNER

FT-V70

VSE-70

NTSC



(Photograph shows BLACK finished model.)

Thank you for buying this Pioneer product.
Please read through these operating instructions and then you
will know how to operate your model properly. After you have
finished reading the instructions, put them away in a safe
place for future reference.

The television channel plan for this unit is set for U.S. standards. It cannot be used for reception of broadcasts in other countries.

IMPORTANT NOTICE [For U.S.A. and Canada models]

The serial number for this equipment is located on the rear panel. Please write this serial number on your enclosed warranty card and keep in a secure area. This is for your security.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD,
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

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 **PIONEER®**

SAFETY INSTRUCTIONS

READ INSTRUCTIONS — All the safety and operating instructions should be read before the appliance is operated.

RETAIN INSTRUCTIONS — The operating instructions should be retained for future reference.

HEED WARNING — All warnings on the appliance and in the operating instructions should be adhered to.

FOLLOW INSTRUCTIONS — All operating and use instructions should be followed.

WATER AND MOISTURE — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

LOCATION — The appliance should be installed in a stable location.

WALL OR CEILING MOUNTING — The appliance should not be mounted to a wall or ceiling.

VENTILATION — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

HEAT — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

POWER SOURCES — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

POWER-CORD PROTECTION — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

POLARIZATION — If your purchased product is provided with a polarized power plug, please read the following instructions. This product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

CLEANING — The appliance should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzene, insecticides or other volatile liquids since they may corrode the cabinet.

POWER LINES — An outdoor antenna should be located away from power lines.

NONUSE PERIODS — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

OBJECT AND LIQUID ENTRY — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

DAMAGE REQUIRING SERVICE — The appliance should be serviced by Pioneer authorized service center or qualified service personnel when:

- The power-supply cord or the plug has been damaged; or
- Objects have fallen, or liquid has been spilled into the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped; or the enclosure damaged.

SERVICING — The user should not attempt to service the appliance beyond that described in the operating instructions. For all other servicing, contact the nearest Pioneer authorized service center.

OUTDOOR ANTENNA GROUNDING — If an outside antenna is connected to the antenna terminal, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges.

In the U.S.A. section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Fig. A.

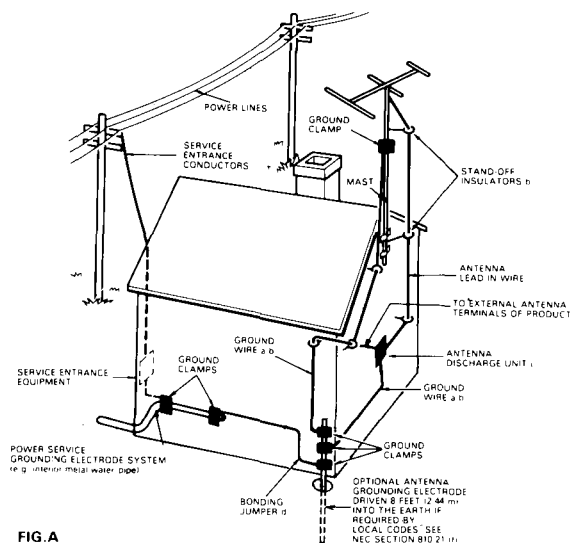


FIG. A

- Use No. 10 AWG (5.3 mm²) copper, No. 8 AWG (8.4 mm²) aluminum, No. 17 AWG (1.0 mm²) copper-clad steel, bronze wire, or larger as ground wire.
- Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4 feet (1.22 meters) to 6 feet (1.83 meters) apart.
- Mount antenna discharge unit as closely as possible to where lead-in enters house.
- Use jumper wire not smaller than No. 6 AWG (13.3 mm²) copper or equivalent when separate antenna-grounding electrode is used.

IMPORTANT



The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

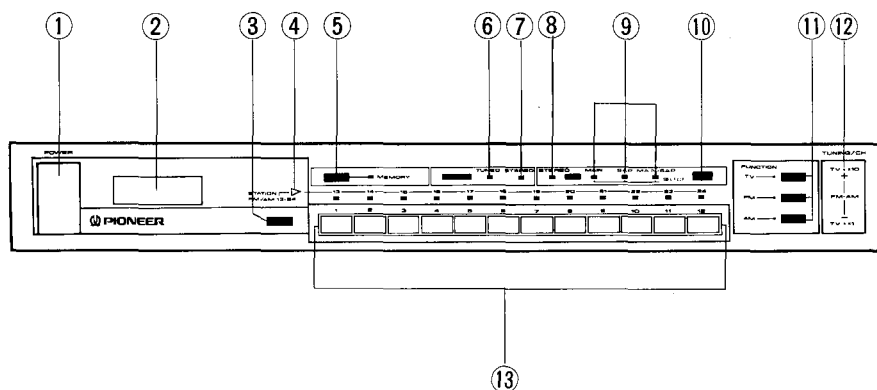
CAUTION:
TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

PANEL FACILITIES

FRONT PANEL



① POWER switch

Press this switch to turn power to the unit on and off.

② TV Channel/Frequency display

Displays digits indicating the television channel or FM/AM broadcast frequency being received.

③ STATION mode switch

This switch is used to set the STATION CALL switches to Mode 1 (1-12) or Mode 2 (13-24). Mode 2 (13-24) is obtained when the switch is pressed and the indicator is lighted.

NOTE:

- Changing the position of this switch has no effect on tuner performance itself.
- This switch is effective only for FM/AM radio broadcasts.

④ STATION mode indicator

Lights when the station mode is in Mode 2 (13-24). (Effective only for FM/AM radio broadcasts.)

⑤ MEMORY switch

Press to memorize stations in the station call switches. When the MEMORY switch is pressed, the CH, MHz or kHz indicator will flash.

⑥ TUNED indicator

Lights when FM or AM broadcasts are received.

⑦ STEREO indicator

Lights when a FM stereo broadcast is received.

⑧ STEREO TV indicator

Lights when a stereo television broadcast is received.

⑨ DUAL indicators

When receiving SAP (separate audio program) broadcasts, the indicator lights corresponding to the DUAL switch selected.

- MAIN: To receive monaural or stereo broadcasts.
 SAP: To receive SAP broadcasts.
 MAIN-SAP: To simultaneously receive normal TV broadcast and SAP broadcast.

⑩ DUAL switch

Use to select the audio mode for TV SAP broadcasts output from the rear panel TV audio output terminals.

Each time the switch is pressed, the mode switches alternately between the following:

- MAIN: To receive monaural or stereo broadcasts.
 SAP: To receive SAP broadcasts.
 MAIN-SAP: To simultaneously receive mono/stereo and SAP broadcasts.

NOTE:

When MAIN-SAP is selected, stereo programs received will actually be heard in monaural.

⑪ FUNCTION switch

Use to select the broadcast mode you wish to receive:

- TV: Press to receive television broadcasts.
 FM: Press to receive FM radio broadcasts.
 AM: Press to receive AM radio broadcasts.

⑫ Tuning/TV channel switch (TUNING/CH)

When FUNCTION switch is set to "TV"

Use for direct selection of the TV broadcast channel. When the "x10" side is pressed, the TV channel's tens column can be set. The tens column changes between unlighted, 1 to 9. When the "x1" side is pressed, the ones column can be set. The ones column changes between 0 and 9. When held depressed, the numbers change continuously.

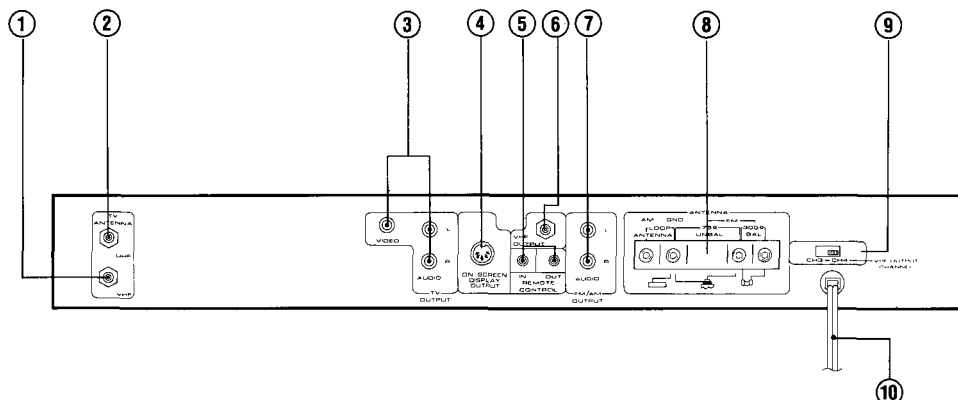
When FUNCTION switch is set to "FM" or "AM"

Use to perform tuning when receiving FM or AM radio broadcasts. When the "—" side is pressed, the reception frequency changes toward lower frequencies. When the "+" side is pressed, the reception frequency changes toward higher frequencies. When pressed and released quickly, the frequency changes in individual steps; when pressed continuously, the frequency changes continuously.

⑬ STATION CALL switches

These switches are pressed when presetting desired broadcast stations, or when tuning in stations preset in the switches. A total of 24 radio stations (FM and AM) and 12 TV stations can be preset in these switches for a grand total of 36 stations.

REAR PANEL



① VHF antenna input jack (75 Ω)

Connect a VHF television antenna.

② UHF antenna input jack (75 Ω)

Connect a UHF television antenna.

③ TV OUTPUT jacks VIDEO jack (yellow) AUDIO jacks (white → left channel) (red → right channel)

These jacks constantly output the video and audio signals of TV broadcasts selected with this tuner. Connect respectively to the video input terminals and audio input terminals of a video component.

④ ON-SCREEN DISPLAY OUTPUT jack

When this tuner is used in combination with the SA-V70, connect to the ON-SCREEN DISPLAY OUTPUT jack of the SA-V70. When the SA-V70 is connected to a TV set or monitor TV, the channel number and reproduction status (STEREO, DUAL/BILINGUAL) will be displayed on the screen of the TV.

⑤ REMOTE CONTROL IN/OUT jacks

Connect to the TUNER input jacks of the stereo amplifier used.

the tuner can be operated with the SA-V70's remote control unit.

For details regarding remote control operation, consult the Operating Instructions for the SA-V70.

⑥ VHF OUTPUT jack

The broadcast signals received by this unit are converted to a channel 3 or 4 television signal and output from this jack. By connecting the unit to your TV set, SAP broadcasts can be watched.

⑦ FM/AM OUTPUT jacks

(White → left channel)

(Red → right channel)

Connect to the TUNER input jacks of the stereo amplifier used.

⑧ FM/AM antenna terminals

These are for the connection of FM and AM antennas. For details regarding connections, consult the section "FM-AM antenna installation".

A normal stereo amplifier can be connected instead of the Pioneer SA-V70, but in that case, the "superimpose" and "remote control" (included with SA-V70) operations will not be possible.

⑨ VHF OUTPUT CHANNEL switch

An empty channel (channel 3 or 4) is used to output the broadcast signal from the VHF output jack, and display it on the TV set. When connecting the VHF output jack and the TV set, set this switch to the channel not used for broadcasting in your area.

⑩ Power Cord

NOTE:

- If a CD player is located nearby this unit, noise may be caused during broadcast reception due to influence from the CD player. In this event, turn off the power to the CD player.
- If the TV set is located nearby this unit, noise may be caused during reception of AM broadcasts due to influence from the TV set. In this event, turn off the power to the TV set.

TV ANTENNA INSTALLATION

An appropriate antenna must be connected to the tuner in order to see and listen to broadcasts. Since the quality of the antenna used is directly related to the quality of the TV or FM/AM reception, an antenna appropriate to the reception area should be selected.

Before beginning connections:

- Whenever connecting an antenna, be sure that the power switch of the unit has been turned OFF.

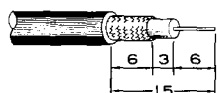
- Fasten all connecting cords and antenna wires securely. If connections are loose, the sound and picture may be distorted.
- Do not tie power cords, pin-plug cords, and antenna wires together, but treat each separately in order to minimize the effects of distortion noise.

1

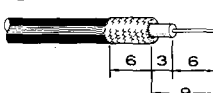
PREPARING THE ENDS OF VHF ANTENNA WIRES

When using coaxial cable:

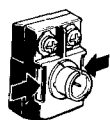
1. Prepare the end of the coaxial cable as shown below.
 - Peel away the outer covering to expose the core wire.
 - After peeling away the outer cover and exposing the core, fold the wire netting back over the outer covering.



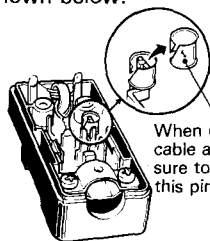
Unit: mm



2. Attach the prepared coaxial cable to the accessory converter plug as shown below.



Press both sides to open the plug case.

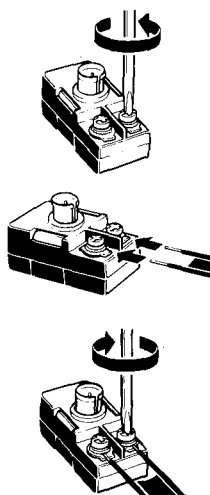


Insert the wire core into this slit.



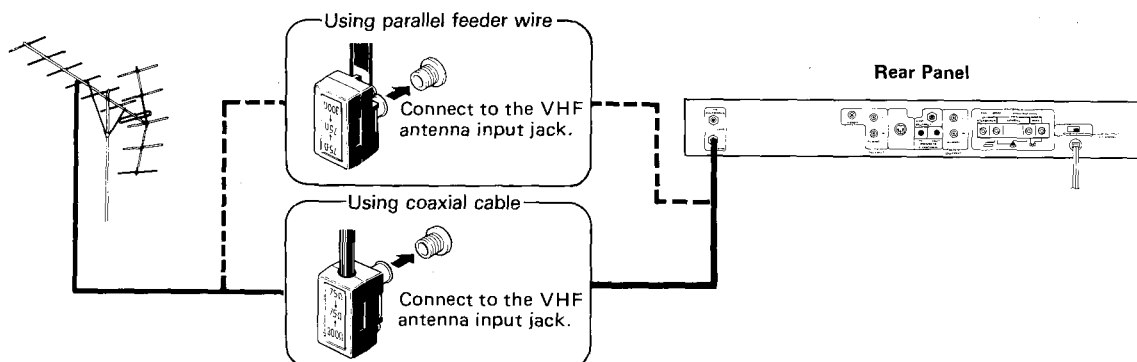
Tighten over the wire netting

When using parallel feeder wire



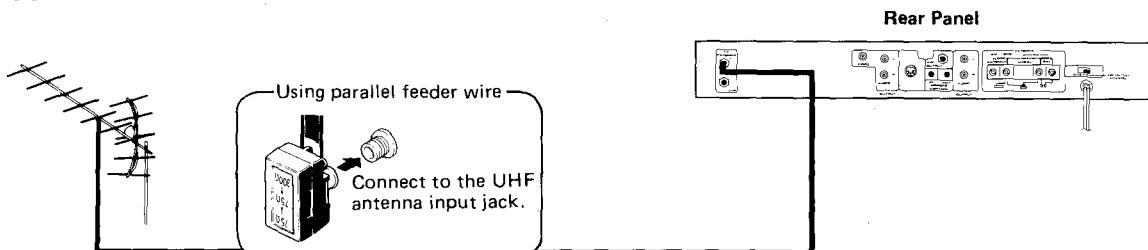
2

CONNECTING A VHF ANTENNA



3

CONNECTING A UHF ANTENNA

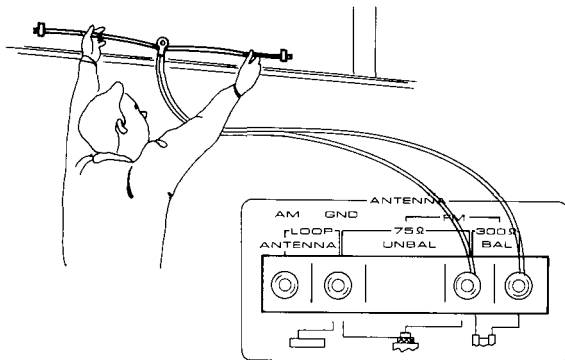


Do not tie this feeder wire together with other wires (power cord, VHF antenna wire, etc.) or to the FM antenna.

AM, FM ANTENNA INSTALLATION

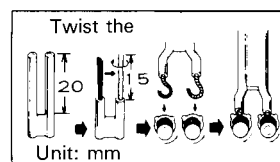
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FM T-TYPE ANTENNA

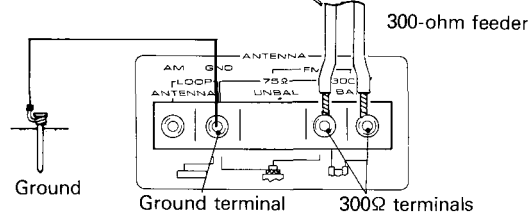


The accessory T-type antenna serves for FM reception until you erect an outdoor antenna. Connect it to the FM 300 Ω BAL terminals. Then tune in an FM station, spread both ends of the antenna as shown in the figure and find the position that yields optimum reception. Once this has been located, stretch the ends taut and fix them to the ceiling or wall.

300 ohm balanced feeder cable connections

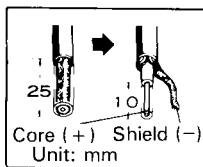


FM outdoor antenna

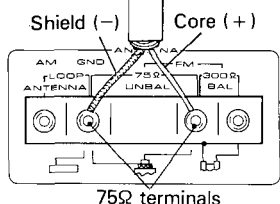


75 ohm coaxial cable connections

FM outdoor antenna



75-ohm coaxial cable



Antenna ground

Although grounding is not necessary for reception it is recommended for protection against damage from lightning if an outdoor FM antenna is used. Grounding is recommended as well to help reduce noise and hum.

NOTE:

Never make the ground connection to a gas pipe as sparks could cause the gas to ignite.

2

AM LOOP ANTENNA

Position the accessory AM loop antenna so that it doesn't come into contact with the case of the tuner or other metal objects, and away from such devices as CD players, home computers, television sets, etc.

(Installation Location)

When set on top of a platform, adjust the orientation as shown in Fig. 1 so that optimum reception is achieved.

(Location for attachment)

When attaching the antenna to a post or wall, first locate a place in which optimum reception can be achieved, then attach as shown in Fig. 2, using wood screws.

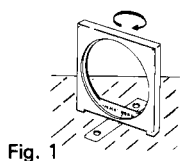
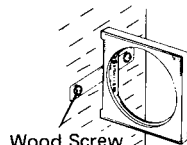


Fig. 1

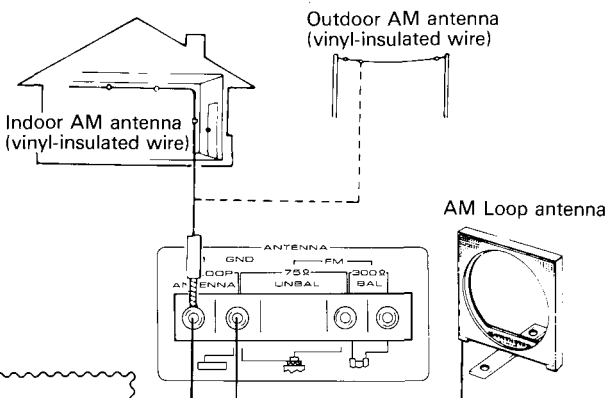


Wood Screw

Fig. 2

NOTE:
Locate as far as possible from TV set.

AM outdoor antenna connection



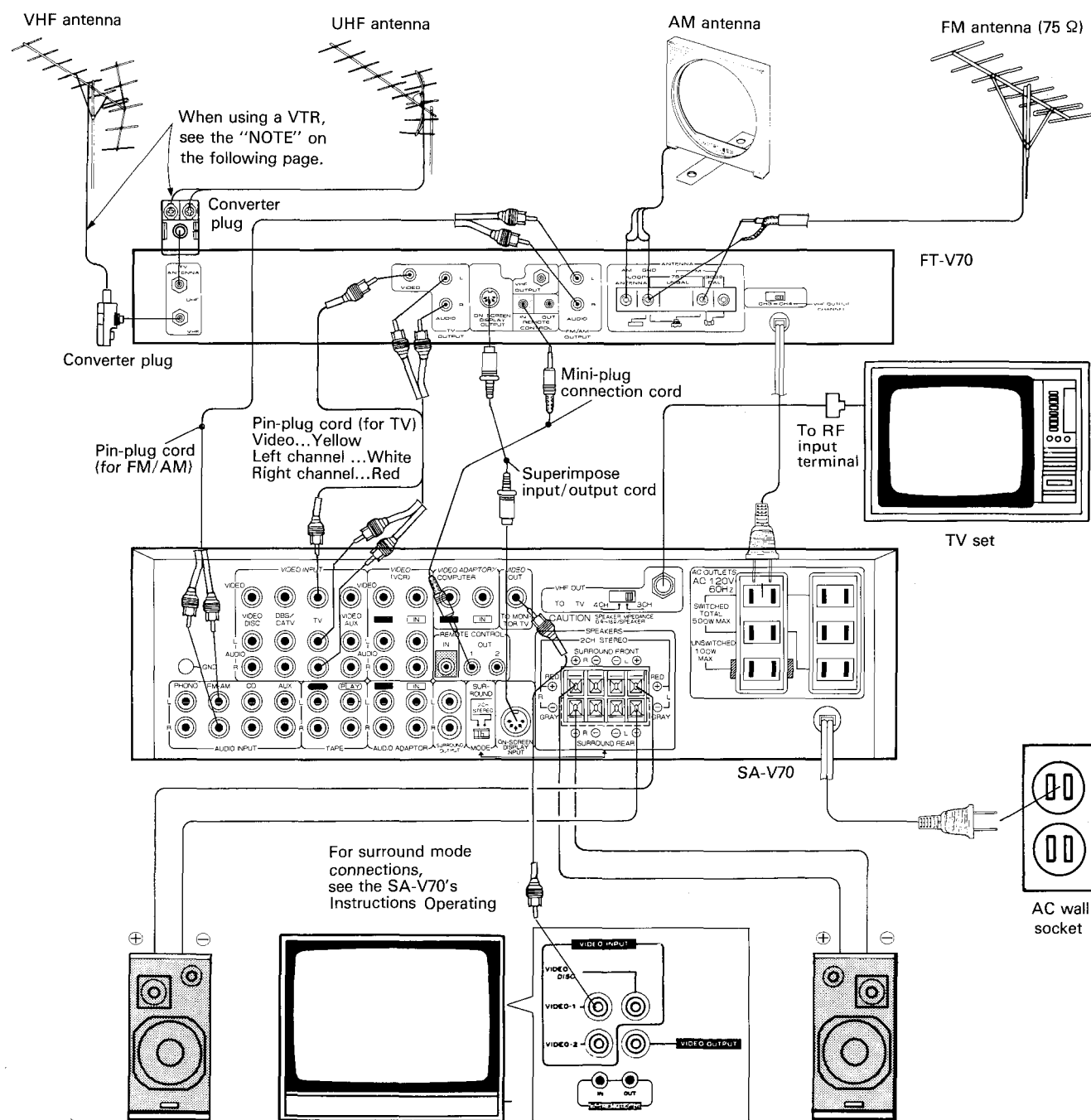
Keep the AM loop antenna connected even after the outdoor AM antenna.

CONNECTIONS TO A VIDEO APPLICATION AMPLIFIER

The connections shown here are exemplary of those required to form a basic system when the tuner is used together with the Master control amplifier SA-V70. Other audio/visual components the connection example include the following:

- Speakers 2
- Normal television set (without video input terminals), or a monitor TV (with video input terminals) 1

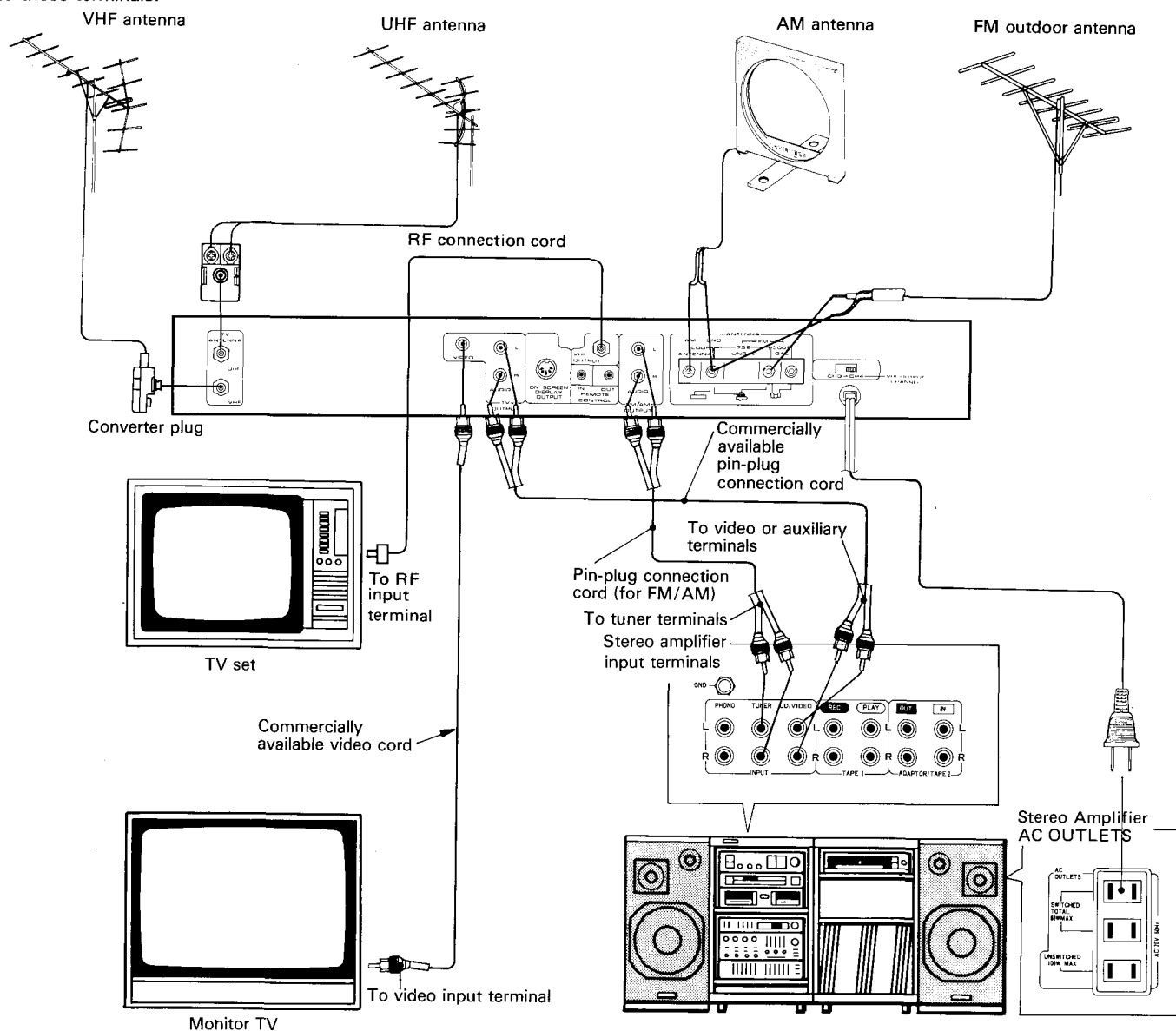
For further connections to upgrade the status of your system, consult the Operating Instructions for the SA-V70.



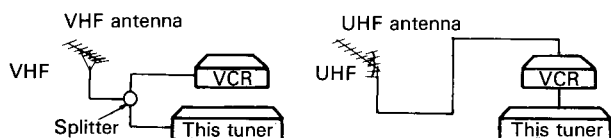
CONNECTIONS TO MONITOR TV AND STEREO SYSTEM

In order to watch programs received with this tuner, a monitor TV or normal TV set is required. Normally, a monitor TV does not have an audio input; as a result, the audio output should be connected to the ADAPTOR or AUX input terminals of your stereo amplifier.

If your monitor TV does have audio input terminals, connect to those terminals.

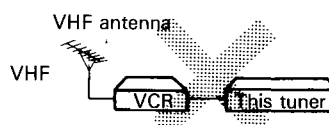


When using this tuner together with a VCR unit, connect them as shown below. For details regarding a signal splitter, see your dealer.



NOTE:

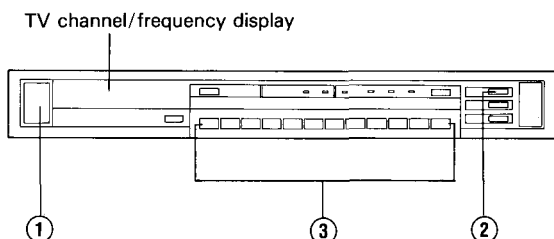
- If the connections shown below are performed, TV reception with this tuner will not be possible during VCR playback.



TO WATCH TV PROGRAMS

This tuner has been set at time of shipping to allow reception of channels 1 – 12.

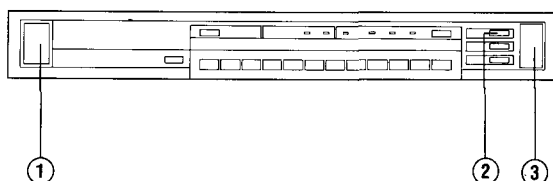
1 TO WATCH CHANNELS 1 – 12



- 1 Turn on the power switches to this unit and other components to be used.
 - 2 Press the FUNCTION switch "TV".
 - 3 Press the STATION CALL switch corresponding to the desired station.
- The channel of the station selected will be shown in the TV channel/frequency display.

2 TO WATCH CHANNELS 13 AND ABOVE

As an example, the following procedures are used when switching from channel 8 to channel 42.

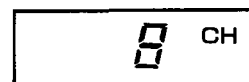
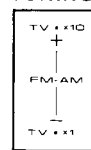


- 1 Turn on the power switches to this unit and other components used.
- 2 Press the FUNCTION switch "TV".
- 3 Use the tuning/TV channel switch as follows: "x10" sets the tens column, "x1" sets the ones column. When held depressed, the numbers change continuously.

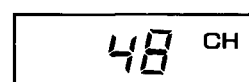
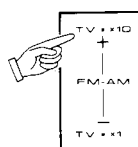
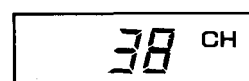
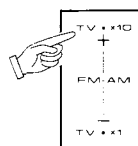
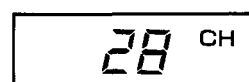
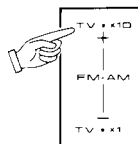
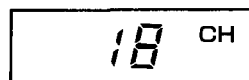
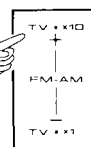
This unit is designed for use with U.S. broadcasting system only. It cannot be used for reception of broadcasts in countries where a different system is employed. Reception is possible on channels 2 to 13 (VHF) and 14 to 83 (UHF).

TUNING/CH

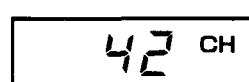
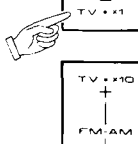
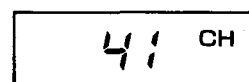
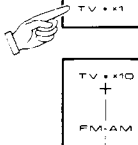
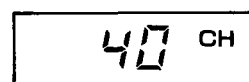
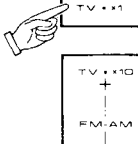
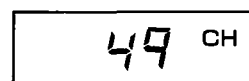
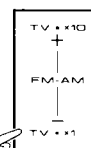
Displaying channel "8."



Tens column



Ones column



If you wish to preset a channel higher than channel 13, see the section "Presetting TV channels."

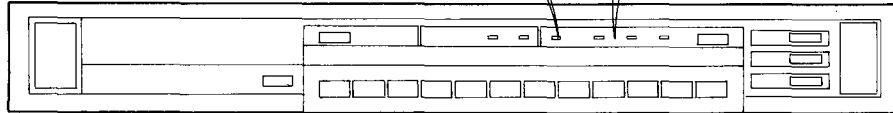
TO WATCH SEPARATE AUDIO PROGRAM (SAP) BROADCASTS

For Stereo Broadcasts

When a stereo program begins, the STEREO indicator lights automatically.

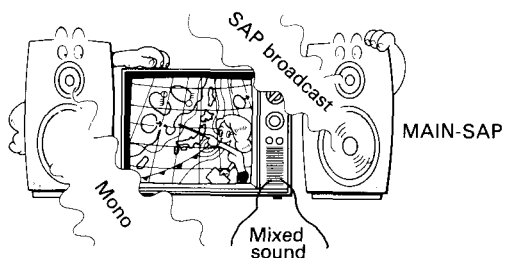
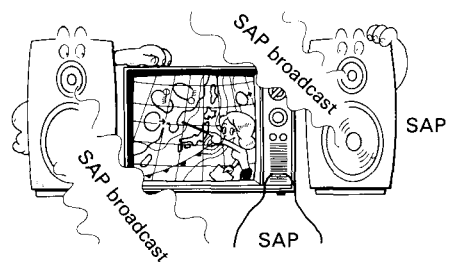
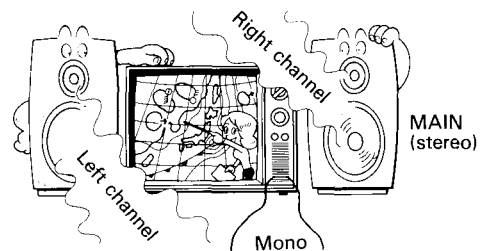
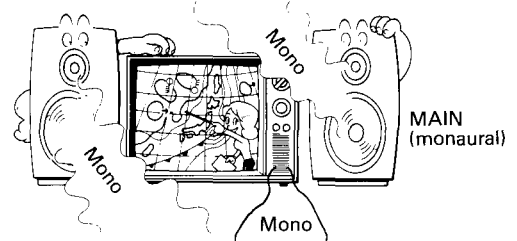
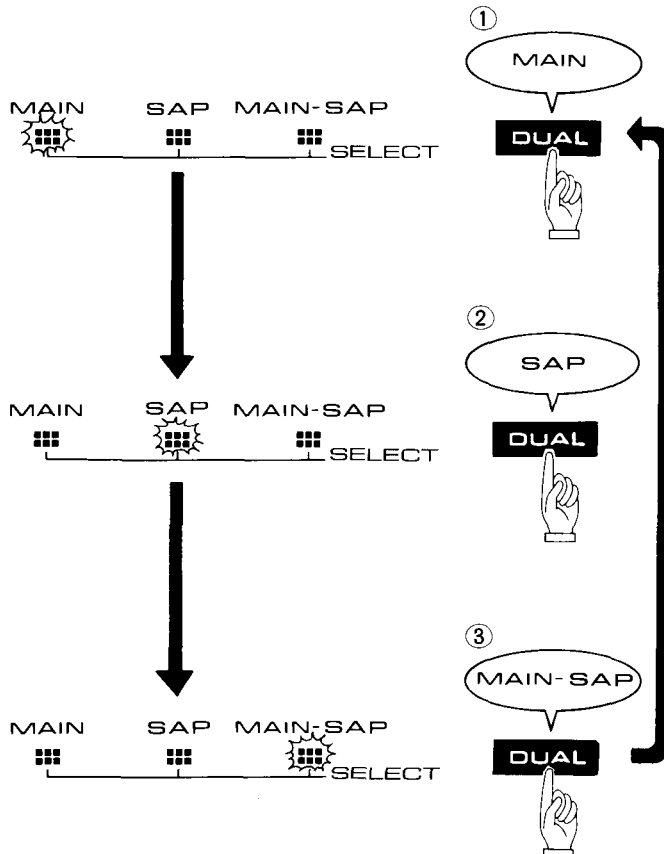
For SAP Broadcasts

When a SAP program begins, the MAIN, SAP, or MAIN-SAP indicator will light.



In general, MAIN is used to receive monaural or stereo broadcasts, while SAP is used for foreign language or completely separate audio programming.

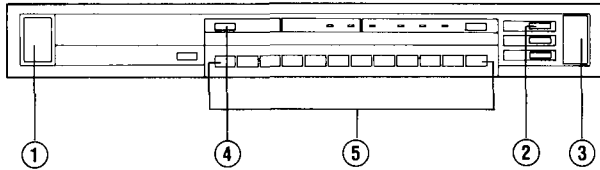
To select the sound heard from your speakers:



- When no SAP program is being broadcast, the DUAL switch cannot be used to select the audio mode. The indicator will flash for several seconds and then go out.
- When a SAP broadcast begins, the indicator for the mode previously used will light; set the mode as desired.

PRESETTING TV CHANNELS

PRESETTING



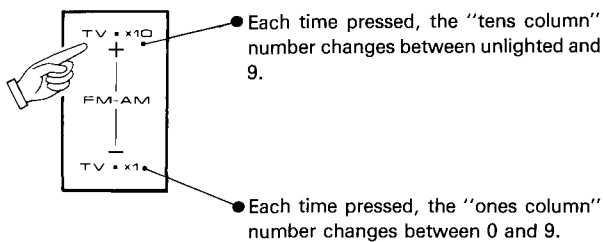
This tuner has been set prior to shipping to allow reception of channels 1 — 12. If you wish to preset channels other than these, or change the order of preset channels, follow the procedures noted below:

- 1 Turn on the power switches to this unit and the other components to be used.
- 2 Press the **FUNCTION** switch "TV".
- 3 Operate the tuning/TV channel switch to tune in the channel you wish to preset.

"x10" sets the tens column.

"x1" sets the ones column.

When held depressed, the numbers change continuously.



- 4 Once you have tuned in the desired channel, press the **MEMORY** switch.

- The CH indicator of the TV channel/frequency display will flash.

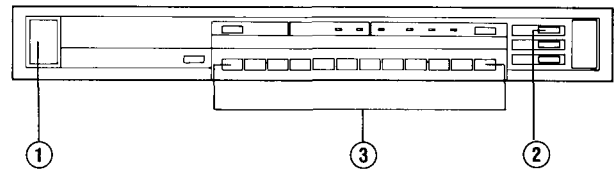
- 5 Press the station call switch into which you wish to memorize the selected channel.

- Press the station call switch during the time the "CH" indicator of the TV channel/frequency display is flashing (about 5 seconds).
- Memorization is not possible after the "CH" indicator has stopped flashing. If the station call switch is pressed when the indicator is not flashing, the station previously memorized in that switch will be received. In this case, once again operate the tuning/TV channel switch to tune in the desired channel.

- 6 Repeat steps 3 — 5 to preset desired stations in switches 1 — 12.

- If you inadvertently preset a channel in a station call switch which already contains a memorized channel, the previously memorized channel will be cancelled, and the last memory contents alone will remain.

RECEPTION USING PRESET TUNING



- 1 Turn on the power switches to this unit and the other components to be used.
- 2 Press the **FUNCTION** switch "TV".
- 3 Press the station call switch into which the desired channel has been previously memorized.

Accurate tuning can be performed by this simple procedure.

NOTE:

- The memory circuit is supplied with power from a backup condenser. As a result, the memorized contents will be preserved for about a one-week period even if no power is supplied to the tuner.
- If the memorized channels are erased, preset them again.

[For Canadian model]

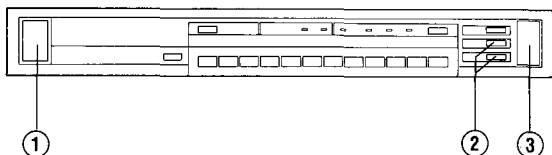
CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION: POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

LISTENING TO FM/AM BROADCASTS AND PRESETTING STATIONS

- Before starting to use the unit, set the FUNCTION switch on the stereo amplifier to TUNER.

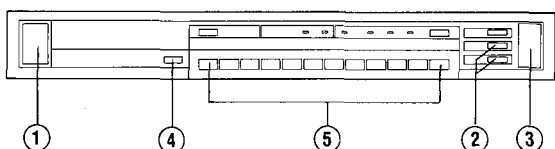
MANUAL TUNING



- Turn on the power switches to this unit and the other components to be used.
- Select your desired band (AM or FM).
- Press the TUNING/CH switch "+" or "-" to tune in the desired station.

For step-by-step searching, press the TUNING switch once and release it immediately. For continuous rapid scanning keep the tuning/TV channel switch pressed. The TUNED indicator will light up when the desired station is tuned in best.

PRESETTING

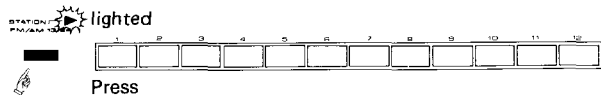


- Turn on the power switches to this unit and the other components to be used.
- Select band of station to be memorized.
- Press the TUNING/CH switch "+" or "-", and tune in the desired station.
- Press the STATION MODE switch to select Mode 1 or Mode 2.

When presetting using Mode 1 STATION CALL switches



When presetting using Mode 2 STATION CALL switches



- When station is tuned in, press the MEMORY switch.

- The TV channel/frequency's FM, MHz (or AM, kHz) indicators will flash for about five seconds.

- Press the STATION CALL switch into which you wish to preset the station.

- Perform presetting during the time that the TV channel/frequency indicator is flashing.

- When the indicator stops flashing, presetting is no longer possible. Press the MEMORY switch again to perform presetting.

- Repeat steps 2 to 6 to preset stations into switches 1 through 24.

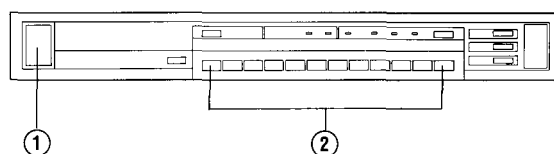
Up to 24 AM and FM stations may be memorized.

If you accidentally preset a station into a STATION CALL switch which contains information, it will be erased and the new station will be entered instead.

NOTE:

STATION CALL switches may be used to (1) Preset FM and AM stations in any order, or (2) preset FM stations in switches 1 through 12 and AM stations into 13 through 24. In the second case, the STATION MODE switch acts as the FUNCTION switch as well.

RECEPTION USING PRESET TUNING



- Turn on the power switches to this unit and the other components to be used.
- Select the band of the station you wish to receive, and press the corresponding FUNCTION switch.
- Press the STATION CALL switch corresponding to the previously preset station that you wish to hear.

By following these procedures, tuning may be effected simply and accurately.

NOTE:

- Preset stations will be retained in the MEMORY when the POWER is switched OFF as long as the POWER cord is not disconnected.
- It is recommended that you disconnect the POWER cord when the unit is not being used for long periods of time. The electrical circuit controlling the MEMORY function is powered by a BACK-UP CONDENSER so that the unit will retain preset stations for a period of up to a week.
- If a preset station has been erased, reset it.

Last station memory

- When the POWER switch is pressed to turn power on, the last station received before the power was previously turned off will be received again.
- When power is ON, if the FUNCTION switch is pressed, the last station received before the FUNCTION switch was previously pressed will be received again.

TROUBLESHOOTING

If you think your unit is malfunctioning, take the time to check out the points below. In many cases, carelessness or incorrect operation is to blame. Alternatively, the problem may lie outside the unit. Make a point of checking the other stereo components being used as well as any other electrical appliances. If the trouble is not remedied even after checking the points below, contact your nearest authorized Pioneer service station.

Symptom	Trouble	Remedy
[AUDIO] No power (POWER switch at ON)	Has the power cord been disconnected?	Reconnect the power cord.
No sound	Have any of the output cords been disconnected or incorrectly connected?	Connect them properly to the TUNER terminals on the amplifier.
	Has the antenna been disconnected or is the connection loose?	Connect the antenna properly.
	Has the power switch been left off for several days? (Station memory has been lost.)	Reprogram station memory.
Static	Is the station properly tuned in to the correct frequency?	Tune in the station correctly.
	Has the antenna been disconnected or is the connection loose?	Connect the antenna properly.
Sound distortion	On the FM band - Poor antenna installation. - Is the cord of the T-antenna still folded up and not extended or is the antenna facing in the wrong direction?	- Install antenna correctly. - Extend the two ends of the antenna and/or change the direction of the antenna until best reception is obtained.
	Are the signals weak and reception poor?	Substitute an FM outdoor antenna for the FM T-antenna.
	Static from other appliances (particularly automobiles) or multipath reflection (radio waves beamed off mountains and tall buildings and not received directly.)	Try varying the height and direction of the antenna or use an FM outdoor antenna substituting a 75-ohm coaxial cable for the standard cable and fixing it as far away as possible from the street.
	On the AM band - Poor positioning of AM loop antenna? - Is accessory AM loop antenna in contact with tuner?	- Change the direction of the antenna until best reception is obtained. - Separate loop antenna as far as possible from tuner.
	Are the signals weak and reception poor?	Fix an AM outdoor antenna or ground the antenna.
	Static from other electrical appliances (fluorescent lights /motors?)	Switch off other appliances or keep as far away as possible from the tuner when in use.
[VIDEO] Spots appear in picture.	Noise signals are being received from cars, electric trains, neon signs, etc.	Install TV antenna farther away from roads, neon signs, etc.
Ghost images.	When large mountains, buildings, or trees are located nearby, the TV picture is being influenced by signals reflected from these objects. In case of a strong wind, the antenna's direction may have been changed.	Try changing the TV antenna's height and direction.
Color stripes appear on screen.	Mixed signal from other sources, or interference signal from other TV channels is being received.	Try changing height and direction of TV antenna. Change to coaxial cable for the VHF antenna (not influenced as much by interference signals).

Symptom	Trouble	Remedy
Distorted picture image and color.	When speaker systems have been installed near the TV set or monitor.	The TV is being influenced by magnetism from the speaker system. Separate the TV set and speaker systems, turn the TV's power switch OFF, and after waiting a bit, turn it ON again.
Stereo broadcasts not heard in stereo.	Signal is too weak, insufficient antenna input.	Change to a special multi-element antenna.
	Tuner not set accurately to the broadcast frequency.	Tune in the frequency accurately.

RELATIONSHIP OF BROADCAST TYPE AND DUAL SWITCH SETTING

The following chart shows the Left/Right speaker output, VHF output, ON-SCREEN DISPLAY, and indicator status when the various kinds of broadcasts listed are selected.

BROADCAST TYPE	DUAL SWITCH SETTING	L OUTPUT	R OUTPUT	INDICATORS	VHF OUTPUT	ON-SCREEN DISPLAY
MONO	———	MONO	MONO	———	MONO	———
STEREO	———	L channel	R channel	STEREO	MONO	STEREO
MONO/SAP	MAIN	MONO	MONO	MAIN	MONO	DUAL/BILINGUAL
	SAP	SAP	SAP	SAP	MONO	DUAL/BILINGUAL
	MAIN/SAP	MONO	SAP	MAIN/SAP	MIXED	DUAL/BILINGUAL
STEREO/SAP	MAIN	L channel	R channel	MAIN + STEREO	MONO	DUAL/BILINGUAL
	SAP	SAP	SAP	SAP + STEREO	MONO	DUAL/BILINGUAL
	MAIN/SAP	MONO	SAP	MAIN/SAP + STEREO	MIXED	DUAL/BILINGUAL

MONO
SAP
MAIN + ST
ST.
SAP
MONO + SA
(ST)

Listen to this!

This tuner constantly outputs simultaneous TV and AM/FM broadcast signals. By using this feature, you can record FM/AM radio broadcasts while watching a TV program, or record a TV program while listening to an FM/AM radio broadcast.

NOTE:

- The station mode (1 — 12, or 13 — 24) can be changed by operating the tuner, or the remote commander included with the SA-V70. For example, if FM stations are preset in 1 — 12 and AM in 13 — 24, the remote commander can be thus used to select the reception band (AM or FM).
- Be sure to turn off the power switch to your TV set or monitor TV when listening to AM broadcasts.

SPECIFICATIONS

TV TUNER SECTION

Circuit type	NTSC
VHF channels	2 — 13
UHF channels	14 — 83
[AUDIO SECTION]	
50 dB Quieting Sensitivity	Mono; 18 μ V/75 Ω Stereo; 18 μ V/75 Ω
Muting level	10 μ V/75 Ω
Signal-to-Noise Ratio	Mono; 65 dB Stereo; 60 dB (56% modulation)
Stereo separation (1 kHz; black burst)	35 dB
Crosstalk	
Main $\rightarrow$ SAP	60 dB
SAP $\rightarrow$ Main	55 dB
Distortion (1 kHz)	Mono; 0.3% (100% modulation) Stereo; 0.5% (56% modulation, black burst)
SAP Signal-to-Noise Ratio	65 dB
Antenna terminals (type/impedance)	
VHF	UNBAL/75 Ω
UHF	UNBAL/75 Ω
Output terminals (level impedance),	
Main $\pm$ 25 kHz drift	500 mV/3.9 k Ω
RF converter (output level/impedance)	
.....	100 μ V/75 Ω
[VIDEO SECTION]	
Video output	1Vp-p/75 Ω
Video Signal-to-Noise Ratio	47 dB
Linearity	
(1) DG	7%
(2) DP	4°

FM Tuner Section

Frequency range	87.5 MHz to 108 MHz
Usable Sensitivity	11.2 dBf, IHF (1 μ V/ 75 Ω)
50 dB Quieting Sensitivity	Mono; 17.3 dBf, IHF (2 μ V/75 Ω) Stereo; 38.2 dBf, IHF (22.2 μ V/75 Ω)
Signal-to-Noise Ratio	Mono; 80 dB (at 85 dBf) Stereo; 75 dB
Distortion	Stereo; 0.2% (1kHz)
Capture Ratio	1 dB
Alternate Channel Selectivity	65 dB (400 kHz)
Stereo Separation	40 dB (1 kHz)
Frequency Response	± 0.5 dB (30 Hz to 15 kHz)
Image Response Ratio	50 dB
IF Response Ratio	110 dB
Antenna Input	300 Ω balanced 75 Ω unbalanced
Output (Level/Impedance)	650 mV/3.5 k Ω (100% modulation)

AM Tuner Section

Frequency range	530 kHz to 1,600 kHz
Sensitivity (IHF, Loop antenna)	300 μ V/m
Signal-to-Noise Ratio	50 dB
Selectivity	20 dB
Image Response Ratio	40 dB
IF Response Ratio	50 dB
Output (Level/Impedance)	
.....	150 mV/3.5 k Ω (30% modulation)
Antenna	Loop Antenna

Miscellaneous

Power Requirements	AC 120 V, 60 Hz
Power Consumption	17 W
Dimensions	420(W) x 59(H) x 318(D) mm 16-9/16(W) x 2-3/8(H) x 12-1/2(D) in
Weight (without package)	4.4 kg(9 lb 11 oz)

Furnished Parts

FM T-type Antenna	1
AM Loop Antenna	1
Connection Cord with Pin Plugs (for TV)	1
Connection Cord with Pin Plugs (for FM/AM)	1
Connection Cord with F-type Plugs	1
Adaptor plug	2
Connection Cord with 5-pin DIN plug	1
Operating Instructions	1

NOTE:

Specifications and design subject to possible modification without notice due to improvements.

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